REMARKS

Claims 1-33 are pending in the present application. Claims 1-14 and 24-29 are rejected. Claims 1, 5, 13 and 24 are herein amended.

Applicants' Response to Claim Rejections under 35 U.S.C. §103

Claims 1-3 were rejected under 35 U.S.C. §103(a) as being unpatentable over Koji (JP 11-105157) in view of Sims (U.S. Patent No. 4,385,090).

It is the position of the Office Action that Koji discloses the invention as claimed, with the exception of (a) the decorative layer being higher than the molding main body in hardness and melt temperature and (b) heating and softening while maintaining a condition in which the decorative layer is harder than the molding main body. The Office Action relies on Sims to provide these teachings.

Koji discloses movement of dies between multiple metal dies

With regard to Applicants' previously filed remarks addressing the multiple stations, the Office Action responds by stating that this argument is unclear. The Office Action states that "in Drawings 5 and 6, the same material (item 14) is present on the same die surface (28a)." In response, Applicants respectfully clarify the method of Koji. First, Applicants note that Drawing 6 does not illustrate the molding, but rather this is illustrated in Drawings 3, 4 and 5. Indeed, in all of Drawings 3-5, a mall raw material 10 is present in the mold such that lateral surface 14 is pressed against recess 28a of metal mold 28.

However, Applicants respectfully submit that the Office Action fails to understand that there are multiple metal molds 28 at six different stations, as illustrated in Drawing 1. Thus, it is clear that there is movement of dies, and that this movement of dies would cause the molding to be displaced from the die. Additionally, the molding apparatus must become larger in size. Both of these are detrimental effects. On the other hand, in the present invention, only a single fixed die is utilized and no such problems occur. Thus, Applicants respectfully submit that the present invention is patentable over the combination of Koji and Sims at least due to this distinction.

The co-extruded preform is not the same, or substantially the same, as a laminated preform

In the previously filed amendment, Applicants also submitted that the combination of references did not disclose or suggest the invention because the claims recite that the main body and decorative layer are "formed by co-extrusion." However, the Office Action states that "the claim does not recite a step of co-extruding, but only provides for a material formed by co-extrusion." The Office Action states that the structure of Sims, which is laminated, is the same or substantially the same as a co-extruded structure, and thus meets all the structural limitations of the preform which is reshaped.

In response, Applicants respectfully submit that a co-extruded molding body differs from a laminate when subjected to the heating, softening and press forming recited in claim 1. The adhesive strength of a laminate is less than that of the co-extruded moldings. The heat-resistance and the durability of the laminate is also less than those of co-extruded moldings. Accordingly, the laminate tends to have problems such as a failure of positioning, peeling off, floating, and an

unevenness of the cover material when formed by heating and bending. As a result, it is difficult for Sims to form an end cover portion having a sharp edge. In contrast, such problems do not occur in the claimed invention.

Furthermore, the claims recite that the material of the decorative layer 22 is higher in hardness than that of the molding main portion 20. In other words, the molding main body has a lower hardness than that of the decorative layer 22 and is softer. A molding having these properties would not be formed by lamination. It is against common technical knowledge to laminate the decorative layer 22 having a greater hardness (a hard material) onto the molding main body 20 having a lesser hardness (a soft material). Even if this is possible, it is extremely difficult to do so.

The reason for difficulty in laminating a hard material onto a soft material is as follows. When a decorative layer 22 having a greater hardness is to be laminated onto the molding main body 20 having a lesser hardness, the pressing force from the decorative layer 22 does not effectively and evenly act on the molding main body 22 in the process of laminating. This results in an unstable strength at the fitting portion boundary between the two components, which might cause a possible problem such as peeling.

In the claimed invention, since the decorative layer 22 and the molding main body 20 are co-extruded, the problem as mentioned above would not occur. Therefore, it is possible to easily manufacture a product which has a stable strength at the boundary fitting portion between two components.

Thus, Applicants respectfully submit that a laminated preform is substantially different from a co-extruded preform. Accordingly, Applicants respectfully submit that the combination of Koji and Sims does not disclose or suggest the invention as claimed.

The pending claims additionally distinguish over the cited art

In addition to the above, Applicants herein amend the claims to recite additional features of the claimed method. First, Applicants herein amend the claims to recite that "a side of said co-extruded long molding body which is opposite of the decorative layer faces said fixed die." The combination of Koji and Sims does not teach this, as it appears that in the combination of Koji and Sims, the covering material 10 would be facing the die.

Further, Applicants herein amend the claims to recite that "said press forming is performed in an oblique direction with respect to the longitudinal direction of the molding, so that the decorative layer moves closer to the fixed die." This is illustrated for clarity in the attached sketch 3. Such a press forming is not disclosed or suggested by the cited references. Accordingly, for at least the above reasons, Applicants respectfully submit that the combination of Koji and Sims does not disclose or suggest the invention as claimed. Favorable reconsideration is respectfully requested.

Claim 4 was rejected under 35 U.S.C. §103(a) as being unpatentable over Koji in view of Sims and in further view of Costello (U.S. Patent No. 3,655,173).

It is the position of the Office Action that the combination of Koji and Sims discloses the invention as claimed, with the exception of a reflecting mirror and a lamp being farther than the focal length. The Office Action relies on Costello to provide this teaching.

First, Applicants respectfully submit that claim 4 is patentable due to its indirect dependency on claim 1, which Applicants submit is patentable for at least the above reasons. With regard to Applicants' previously filed arguments that Koji lacks a focal point, the Office Action responds by stating that "because the case (30 in Drawing 5) extends below the face of the heater element, it would provide a reflecting function." Furthermore, the Office Action states that it is "unclear why focusing of the infrared source, as provided in the rejection, would be undesirable to Koji."

In response, Applicants respectfully submit that simply because the case 30 of Koji extends below the heater element, this does not mean that it has a reflecting function. In order to have a reflecting function, the case 30 would have to include a reflective surface, which is not disclosed by Koji.

However, even if the case 30 did have a reflective surface, Koji still would not disclose forming a "focal point." Applicants respectfully submit that objects which have a reflecting function do not necessary form a "focal point." For example, the McGraw-Hill Dictionary of Scientific Terms provides the following definitions:

Reflectance: the return of waves or particles from surfaces on which they are incident

Focal point: the point to which rays that are initially parallel to the axis of a lens, mirror, or other optical system are converged or from which they appear to diverge.

Please see the attached definitions. Thus, it is clear that even if the case 30 of Koji is interpreted as being reflective, the rays reflecting from it do not converge, thus it does not form a focal point, as required by claim 4.

Additionally, with regard to the Office Action's statement regarding the *desirability* of focusing the infrared source of Koji, Applicants respectfully submit that this is irrelevant because Koji does not disclose or suggest such focusing. Applicants respectfully traverse the rejection. Favorable reconsideration is respectfully requested.

Claims 5-12 were rejected under 35 U.S.C. §103(a) as being unpatentable over Koji in view of Sims and Loy (U.S. Patent No. 3,830,680).

It is the position of the Office Action that Koji discloses the invention as claimed, with the exception of (a) the decorative layer being higher than the molding body in hardness and melt temperature, (b) heating and softening while maintaining a condition in which the decorative layer is harder than the molding main body, and (c) moving the movable punch obliquely toward the die. The Office Action relies on Sims and Loy to provide these teachings.

In response to Applicants' previously filed arguments that Loy was not relevant since it is directed to a laminate, the Office Action states that "while Loy does teach attachment during the

reshaping process, there is no reason why the device and reshaping process would be undesirable in the combination of references simply because of its teaching of additionally laminating the perform to another material."

First, Applicants respectfully submit that claims 5-12 are patentable over the combination of Koji, Sims and Loy for at least the same reasons as those discussed above with regard to claims 1-3. Additionally, Applicants respectfully submit that Loy is not properly combinable with Koji and Sims. Loy is directed a heating apparatus in which includes edge forming die 70. This edge forming die 70 is used to form plastic laminate sheet 45 such that it "generally conforms to the right angle configuration of the backsplash 16 and countertop 15." See column 7, lines 14-16. Because Loy is directed at forming and shaping a laminate, its teachings are not relevant to the press forming operation of a previously formed co-extruded mold. Applicants respectfully traverse the rejection. Favorable reconsideration is respectfully requested.

Claims 13 and 14 are rejected under 35 U.S.C. §103(a) as being unpatentable over Koji in view of Harris (U.S. Patent No. 4,864,786) and Hideyasu (JP 2001-088155).

It is the position of the Office Action that Koji discloses the invention as claimed, with the exception of (a) extrusion molding a molding body including a molding main body, a leg portion and a pair of protruding portions, the pair of protruding portions each protruding from one of both sides of the leg portion in a width direction of the molding main body, (b) cutting the molding body into a cut piece having a predetermined length, (c) removing the protruding portions from a back side of an end portion of the cut piece to form a first region thereon; and

removing the protruding portions and the leg portion from a second region consecutive with a distal side of the first region to form a step, (d) the decorative layer being higher than the molding main body in hardness and melt temperature, (e) heating and softening while maintaining a condition in which the decorative layer is harder than the molding main body, and (f) positioning the cut piece in a longitudinal direction thereof by bringing the step into contact with the fixed die. The Office Action relies on Hideyasu to teach (a) and (b), on Hideyasu to teach (c), Harris to teach (d) and (e), and Koji or Hideyasu to teach (f).

First, Applicants address the previously filed argument that applying Hideyasu to a molding process would make the process inoperable due to the line which would form. In order to illustrate this point, Applicants submitted Sketch 2. In response, the Office Action states that "Applicant's sketch appears to provide opinion evidence only that a line would necessarily be present, but does not provide any supporting evidence." Thus, in order to provide the Office with the requested evidence, Applicants herewith submit a reproduction of Sketch 2 along with an explanation thereof, as a Declaration under 37 CFR 1.132.

Additionally, the Office Action now relies on Harris instead of Sims to teach extrusion molding a body made of a thermoplastic material which is co-extruded with a decorative layer harder than the molding body. Harris discloses extruding a decorative molding 50, but states that the decorative molding 50 "may itself be coextruded with a metallic strip such as indicated at 52 to present a pleasing exterior appearance. Accordingly, in order to further distinguish claims 13 and 14 over the cited art, Applicants herein amend claim 13 in order to recite "a thermoplastic decorative layer." This is supported by page 19, lines 13-20. Accordingly, for at least the above

reasons, Applicants respectfully submit that claims 13 and 14 are patentable over the cited art. Favorable reconsideration is respectfully requested.

Claims 24-29 were rejected under 35 U.S.C. §103(a) as being unpatentable over Davies (U.S. Patent No. 2,500,895) in view of Hideyasu.

It is the position of the Office Action that Davies discloses the invention as claimed, with the exception of heating and softening the end portion and reducing the volume of the cavity while keeping the vicinity of a bending center portion of the end bending portion in a fluid state. The Office Action relies on Hideyasu to provide these teachings.

First, Applicants respectfully repeat the above remarks with regard to a line being formed in the combination of Davies and Hideyasu. Furthermore, Applicants here amend claim 24 in a manner similar to that of claims 1 and 5. Accordingly, Applicants respectfully submit that pending claims 24-29 are patentable over the cited art.

Additionally, with regard to Applicants' previously filed arguments that Davies and Hideyasu lack a "fixed die," the Office Action states that the "[l]imitations to stationary mold parts or movement of particular mold parts would not distinguish the claim limitations from the prior art which teaches substantially the same relative movement."

Accordingly, Applicants herein explain the importance of the "fixed die," and how such a fixed die results in a different molded product. In other words, Applicants herein comment on how a fixed die with a movable mold part differs from two opposing movable mold parts. It is common that an end portion of a long molding is formed to held by an appropriate means at a

portion that is not to be sandwiched by forming dies, to set and position the molding on a first die, and then to move a second die towards the first die, thereby forming the end portion of a molding.

However, in Davies and Hideyasu, while the end portion of the molding is formed, not only the die but also the entire molding is moved in the vertical direction. The result of this is a detrimental effect of the molding being displaced with respect to the die such that stable forming becomes difficult.

In contrast, in the claimed invention, the molding is set on a fixed die. In the forming process, the positions of the fixed die and the molding are maintained in a fixed manner so that they are not moved in the vertical direction. Accordingly, the end portion of the molding can be formed stably.

When the molding is set on a lower die and the die is moved (as in Davies and Hideyasu), the molding will be displaced, since the molding is a long product and is not fixed on the die. However, when the lower die is fixed, such a displacement would not occur.

A typical press machine has a fixed lower die and an upper die which is movable. A press machine having a movable lower die undesirably needs to be specially customized and needs to have a complicated structure of dies. However, a press machine having a fixed lower die and a movable upper die can be structurally simplified. Additionally, Applicants herein amend claim 24 in a manner similar to claims 1, 5 and 13, discussed above. Accordingly, Applicants respectfully submit that the pending claims are patentable over Davies and Hideyasu, since the references lack a "fixed die." Favorable reconsideration is respectfully requested.

For at least the foregoing reasons, the claimed invention distinguishes over the cited art and defines patentable subject matter. Favorable reconsideration is earnestly solicited.

Should the Examiner deem that any further action by applicants would be desirable to place the application in condition for allowance, the Examiner is encouraged to telephone applicants' undersigned attorney.

If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,

WESTERMAN, HATTORI, DANIELS & ADRIAN, LLP

Ryan B. Chirnomas
Attorney for Applicants
Registration No. 56,527
Telephone: (202) 822-1100
Facsimile: (202) 822-1111

RBC/nrp

Enclosures: Dictionary Definitions from the McGraw-Hill Dictionary of Scientific Terms
Declaration under 37 CFR 1.132 (including reproduction of Sketch 2)
Sketch 3
Request for Continued Examination
Petition for Extension of Time

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of: **Yoshikazu MIWA et al.** Group Art Unit: **1732**

Application Number: **10/720,081** Examiner: **Matthew J. Daniels**

Filed: **November 25, 2003** Confirmation Number: **4933**

For: **MOLDING MANUFACTURING METHOD AND APPARATUS**

Attorney Docket Number: **053434**
Customer Number: **38834**

DECLARATION UNDER 37 C.F.R. §1.132

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

July 12, 2007

Sir:

I, Tatsuya TAMURA, a citizen of Japan, hereby declare and state the following:

1. I graduated from KOUGAKUIN College of Tokyo, Japan in 1966 with a Bachelor degree in Mechanical Engineering.

2. Since 1999, I have been employed by Tokai Kogyo Company Limited at 4-1, Nagane-Cho, Obu-City, Aichi Pref., Japan where my present title is General Manager of Intellectual Property Dept. During my employment therein, I have conducted intellectual property works.

3. I am the author of the following publications:

United States Patent Application Publication No. 2004/0156941.

4. I have read and am familiar with the above-identified patent application as well as the Official Action dated March 21, 2007, in the application.

5. I have read and am familiar with the contents of cited reference(s), Japanese Patent JP11-105157 to Koji, U.S. Patent No. 4,864,786 to Harris; and Japanese Patent JP 2001-088155 to Hideyasu cited in the Official Actions in the above-identified application.

6. The following is an explanation of why the die structure of Hideyasu would inevitably result in a line being formed in the decorative layer. This explanation refers to Sketch 2, attached herewith.

7. The molding structure of Hideyasu consists of an upper die 35, a lower die 21, a back-and-forth movable die 27 and an up-and-down movable die 25. The molding material 11 is set between the upper die 35 and the lower die 21 in a manner such that the outer surface side (decorative portion) 15 faces the lower die 21. When the upper die 35 is moved downward, the up-and-down movable die 25 is moved downward and the back-and-forth slidable die 27 synchronously slides toward the up-and-down movable die 25.

8. When the upper die 35 and the lower die 21 are closed, the back-and-forth movable die 27 is brought into contact with the up-and-down movable die 25. At the same time, a forming cavity is formed between the upper die 35, the lower die 21 and the back-and-forth movable die 27. This forming cavity forms the end portion of the molding material 11 into a predetermined shape.

9. At the time when the upper die 35 and the lower die 21 are closed, a divisional line of dies occurs at the portion where the distal end of the back-and-forth movable die 27 and the up-and-down movable die 25 are in contact with each other. The end portion of the molding material 11, which is set as above, is held and compressed between the upper die 35, the up-and-down movable die 25 and the back-and-forth movable die 27 when the upper die and the lower die 21 are closed. This condition is, in other words, similar to injection molding.

10. Being compressed as above, the end portion of the molding material 11 is strongly pressed onto the surfaces of the lower die 21 and the back-and-forth movable die 27. As a

result, at the contacting portion of the distal end of the back-and-forth movable die 27 and the up-and-down movable die 25, the divisional line of the dies is inversely transferred to the molding material 11 such that a linear mark, similar to a parting line in an injection molding, inevitably is formed. Even a slight gap at the contacting portion causes an occurrence of a burr.

11. As such, manufacturing of a molding by the use of the structure of Hideyasu inevitably causes occurrence of the linear mark on the visible outer surface 15 of the molding, which results in the deterioration of the quality of the outer appearance of the molding.

12. From the common technical knowledge of the art, I have concluded, among other things, that it is unavoidable or inevitable that a visible line occurs along the parting line between the up-and-down movable die 25 and the back-and-forth movable die 27.

The undersigned declares that all statements made herein of his own knowledge are true, and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under §1001 of Title 18 of the United States Code and that willful false statements may jeopardize the validity of the application or any patent issued thereon.

T. Tamura

Tatsuya TAMURA

Signed this 12 day of July, 2007.

Attachment: Reproduction of sketch 2, originally filed on July 18, 2006

a million photosensors on a single semiconductor silicon chip arranged in a rectangular grid matrix that is placed in the focal plane of an optical instrument. { ˈfō·kəl ˌplān əˈrā }

focal-plane shutter [OPTICS] A camera shutter consisting of a blind containing a slot; the blind is pulled rapidly across the film, exposing it through the slot. { ˈfō·kəl ˌplān ˈshəd·ər }

focal point [OPTICS] The point to which rays that are initially parallel to the axis of a lens, mirror, or other optical system are converged or from which they appear to diverge. Also known as principal focus. { ˈfō·kəl ˌpȯint }

focal power [OPTICS] A measure of the ability of a lens, mirror, prism, or optical system to converge a parallel beam of light; equals the reciprocal of the focal length. Also known as power. { ˈfō·kəl ˌpau·ər }

focal property [MATH] **1.** The property of an ellipse or hyperbola whereby lines drawn from the foci to any point on the conic make equal angles with the tangent to the conic at that point. **2.** The property of a parabola whereby a line from the focus to any point on the parabola, and a line through this point parallel to the axis of the parabola, make equal angles with the tangent to the parabola at this point. { ˈfō·kəl ˈpräp·ər·dē }

focal radius [MATH] For a conic, a line segment from a focus to any point on the conic. { ˈfō·kəl ˈrād·ē·əs }

focal ratio *See* f number. { ˈfō·kəl ˈrā·shō }

focal seizure [MED] An epileptic manifestation of a restricted nature, usually without loss of consciousness, due to irritation of a localized area of the brain. { ˈfō·kəl ˈsē·zhər }

focal spot [MET] In electron-beam or laser welding, the spot where the beam has the highest concentrated energy level. { ˈfō·kəl ˌspät }

Foch space [QUANT·MECH] An infinite-dimensional vector space in which the state of a quantum-mechanical system with a variable number of particles is represented by an infinite number of wave functions, each of which corresponds to a fixed number of particles. { ˈfōsh ˌspās }

focometer [ENG] An instrument for measuring focal lengths of optical systems. { fōˈkäm·əd·ər }

focus [ELECTR] To control convergence or divergence of the electron paths within one or more beams, usually by adjusting a voltage or current in a circuit that controls the electric or magnetic fields through which the beams pass, in order to obtain a desired image or a desired current density within the beam. [GEOPHYS] The center of an earthquake and the origin of its elastic waves within the earth. [MATH] A point in the plane which together with a line (directrix) defines a conic section. [NUCLEO] To guide particles along a desired path in a particle accelerator by means of electric or magnetic fields. [OPTICS] **1.** The point or small region at which rays converge or from which they appear to diverge. **2.** To move an optical lens toward or away from a screen or film to obtain the sharpest possible image of a desired object. { ˈfō·kəs }

focus control [ELECTR] A control that adjusts spot size at the screen of a cathode-ray tube to give the sharpest possible image; it may vary the current through a focusing coil or change the position of a permanent magnet. [OPTICS] A device to adjust a lens system to produce a sharp image. { ˈfō·kəs kənˌtrōl }

focused collision sequence [PHYS] A cascade of interatomic collisions, initiated by the bombardment of a crystal with energetic particles, that propagates in a particular direction along a closely packed row of atoms in the crystal. { ˌfō·kəst kəˈlizh·ən ˌsē·kwəns }

focused-current log [ENG] A resistivity log that is obtained by means of a multiple-electrode arrangement. { ˌfō·kəst ˌkə·rənt ˌläg }

focusing anode [ELECTR] An anode used in a cathode-ray tube to change the size of the electron beam at the screen; varying the voltage on this anode alters the paths of electrons in the beam and thus changes the position at which they cross or focus. { ˈfō·kəs·iŋ ˌan,ōd }

focusing coil [ELECTR] A coil that produces a magnetic field parallel to an electron beam for the purpose of focusing the beam. { ˈfō·kəs·iŋ ˌkȯil }

focusing collector [ENG] A solar collector that uses semicircular aluminum reflectors to focus sunlight onto copper pipes containing circulating water. { ˈfō·kəs·iŋ kəˈlek·tər }

focusing electrode [ELECTR] An electrode to which a potential is applied to control the cross-sectional area of the electron beam in a cathode-ray tube. { ˈfō·kəs·iŋ iˌlek,trōd }

focusing glass [OPTICS] A magnifying glass designed to enlarge the image thrown on the ground glass of the viewfinder of a camera, to help achieve exact focusing. { ˈfō·kəs·iŋ ˌglas }

focusing magnet [ELECTR] A permanent magnet used to produce a magnetic field for focusing an electron beam. { ˈfō·kəs·iŋ ˌmag·nət }

focusing scale [OPTICS] A graduated scale to indicate appropriate lens-to-image plane positions for given lens-to-object plane distances. { ˈfō·kəs·iŋ ˌskāl }

focus lamp [ELEC] **1.** A lamp whose filament has a spiral or zigzag form in order to reduce its size, so that it can be brought into the focus of a lens or mirror. **2.** An arc lamp whose feeding mechanism is designed to hold the arc in a constant position with respect to an optical system that is used to focus its rays. { ˈfō·kəs ˌlamp }

focus projection and scanning [ELECTR] Method of magnetic focusing and electrostatic deflection of the electron beam of a hybrid vidicon; a transverse electrostatic field is used for beam deflection; this field is immersed with an axial magnetic field that focuses the electron beam. { ˌfō·kəs prəˌjek·shən ən ˈskan·iŋ }

focus wave mode [PHYS] A localized wave solution of the three-dimensional wave equation whose overall characteristics depend on a free parameter such that it resembles a transverse plane wave at one extreme and a narrow spatially transverse pulse at the other extreme. { ˌfō·kəs ˈwāv ˌmōd }

foehn [METEOROL] A warm, dry wind on the lee side of a mountain range, the warmth and dryness being due to adiabatic compression as the air descends the mountain slopes. Also spelled föhn. { fān }

foehn air [METEOROL] The warm, dry air associated with foehn winds. { ˈfān ˌer }

foehn cloud [METEOROL] Any cloud form associated with a foehn, but usually signifying only those clouds of the lenticularis species formed in the lee wave parallel to the mountain ridge. { ˈfān ˌklaud }

foehn cyclone [METEOROL] A cyclone formed (or at least enhanced) as a result of the foehn process on the lee side of a mountain range. { ˈfān ˈsīˌklōn }

foehn island [METEOROL] An isolated area where the foehn has reached the ground, in contrast to the surrounding area where foehn air has not replaced colder surface air. { ˈfān ˈīˌland }

foehn nose [METEOROL] As seen on a synoptic surface chart, a typical deformation of the isobars in connection with a well-developed foehn situation; a ridge of high pressure is produced on the windward slopes of the mountain range, while a foehn trough forms on the lee side; the isobars "bulge" correspondingly, giving a noselike configuration. { ˈfān ˌnōz }

foehn pause [METEOROL] **1.** A temporary cessation of the foehn at the ground, due to the formation or intrusion of a cold air layer which lifts the foehn above the valley floor. **2.** The boundary between foehn air and its surroundings. { ˈfān ˌpȯz }

foehn period [METEOROL] The duration of continuous foehn conditions at a given location. { ˈfān ˌpir·ē·əd }

foehn phase [METEOROL] One of three stages to describe the development of the foehn in the Alps: the preliminary phase, when cold air at the surface is separated from warm dry air aloft by a subsidence inversion; the anticyclonic phase, when the warm air reaches a station as the result of the cold air flowing out from the plain; and the stationary phase or cyclonic phase, when the foehn wall forms and the downslope wind becomes appreciable. { ˈfān ˌfāz }

foehn sickness [MED] A phenomenon in humans in alpine regions, marked by adverse psychological and physiological effects during prolonged periods of foehn wind. { ˈfān ˌsik·nəs }

foehn storm [METEOROL] A type of destructive storm which frequently occurs in October in the Bavarian Alps. { ˈfān ˌstȯrm }

foehn trough [METEOROL] The dynamic trough formed in connection with the foehn. { ˈfān ˌtrȯf }

foehn wall [METEOROL] The steep leeward boundary of flat,

across a 600-ohm resistance to which is delivered a power of 1 milliwatt at 1000 hertz. { 'ref·rəns ˌväl·yəm }

reference white [COMMUN] **1.** In a scene viewed by television cameras, the color of light from a nonselective diffuse reflector that is lighted by the normal illumination of the scene. **2.** The color by which this color is simulated on a television screen or other display device. { 'ref·rəns ˌwīt }

reference white level [ELECTR] In television, the level at the point of observation corresponding to the specified maximum excursion of the picture signal in the white direction. { 'ref·rəns 'wīt ˌlev·əl }

referencing [ENG] The process of measuring the horizontal (or slope) distances and directions from a survey station to nearby landmarks, reference marks, and other permanent objects which can be used in the recovery or relocation of the station. { 'ref·rən·siŋ }

referred pain [MED] Pain felt in one area but originating in another area. { ri'fird 'pān }

refine [ENG] To free from impurities, as the separation of petroleum, ores, or chemical mixtures into their component parts. { ri'fīn }

refined kerosine *See* deodorized kerosine. { ri'fīnd 'kerəˌsēn }

refined lard [FOOD ENG] A purified lard, produced by removing with alkali the free fatty acids, coloring matter, and mucilaginous gums from rendered lard. { ri'fīnd 'lärd }

refined lecithin *See* lecithin. { ri'fīnd 'les·ə·thən }

refined oil [MATER] A class of petroleum oil used for home lighting and cooking purposes. Also known as burning oil. { ri'fīnd 'ȯil }

refined paraffin wax [MATER] A grade of paraffin wax; a hard, crystalline hydrocarbon wax derived from mixed-base or paraffin-base crude oils. { ri'fīnd 'par·ə·fən ˌwaks }

refined tar [MATER] A tar from which water has been extracted by evaporation or distillation. { ri'fīnd 'tär }

refinement [MATH] A tower that can be obtained by inserting a finite number of subsets in a given tower. { ri'fīn·mənt }

refinery [CHEM ENG] System of process units used to convert crude petroleum into fuels, lubricants, and other petroleum-derived products. [MET] System of process units used to convert nonferrous-metal ores into pure metals, such as copper or zinc. { ri'fīn·rē }

refinery gas [MATER] Gas produced in petroleum refineries by cracking, reforming, and other processes; principally methane, ethane, ethylene, butanes, and butylenes. { ri'fīn·rē ˌgas }

refining temperature [MET] The temperature just above the transformation range employed in the heat treatment of steel in order to refine grain size. { ri'fīn·iŋ ˌtem·prə·chər }

reflectance [COMPUT SCI] In optical character recognition, the relative brightness of the inked area that forms the printed or handwritten character; distinguished from background reflectance and brightness. [ELEC] *See* reflection factor. [PHYS] *See* reflectivity. { ri'flek·təns }

reflectance spectrophotometry [SPECT] Measurement of the ratio of spectral radiant flux reflected from a light-diffusing specimen to that reflected from a light-diffusing standard substituted for the specimen. { ri'flek·təns ˌspek·trə·fə'täm·ə·trē }

reflected binary [COMPUT SCI] A particular form of gray code which is constructed according to the following rule: Let the first 2^N code patterns be given, for any N greater than 1; the next 2^N code patterns are derived by changing the $(N + 1)$-th bit from the right from 0 to 1 and repeating the original 2^N patterns in reverse order in the N rightmost positions. Also known as reflected code. { ri'flek·təd 'bīˌner·ē }

reflected buried structure [GEOL] The distortion of surface beds that reflect a similar structural distortion of underlying formations. { ri'flek·təd 'ber·ēd 'strək·chər }

reflected code *See* reflected binary. { ri'flek·təd 'kōd }

reflected impedance [ELEC] **1.** Impedance value that appears to exist across the primary of a transformer due to current flowing in the secondary. **2.** Impedance which appears at the input terminals as a result of the characteristics of the impedance at the output terminals. { ri'flek·təd im'pēd·əns }

reflected pressure [PHYS] The pressure from an explosion (especially an airburst bomb), which is reflected from a solid object or surface, rather than dissipated in the air. { ri'flek·təd 'presh·ər }

reflected ray [PHYS] A ray extending outward from a point of reflection. { ri'flek·təd 'rā }

reflected resistance [ELEC] Resistance value that appears to exist across the primary of a transformer when a resistive load is across the secondary. { ri'flek·təd ri'zis·təns }

reflected signal indicator [ENG] Pen recorder which presents the radar signals within frequency gates; these recordings enable the operator to determine that an airborne object has penetrated the Doppler link and its direction of penetration. { ri'flek·təd ˌsig·nəl 'in·dəˌkād·ər }

reflected ultraviolet method [GRAPHICS] A method of ultraviolet photography in which an ultraviolet source is used and the camera is provided with a filter which permits only reflected ultraviolet light to reach the film. { ri'flek·təd ˌəl·trə'vī·lət ˌmeth·əd }

reflected wave [PHYS] A wave reflected from a surface, discontinuity, or junction of two different media, such as the sky wave in radio, the echo wave from a target in radar, or the wave that travels back to the source end of a mismatched transmission line. { ri'flek·təd 'wāv }

reflecting antenna [ELECTROMAG] An antenna used to achieve greater directivity or desired radiation patterns, in which a dipole, slot, or horn radiates toward a larger reflector which shapes the radiated wave to produce the desired pattern; the reflector may consist of one or two plane sheets, a parabolic or paraboloidal sheet, or a paraboloidal horn. { ri'flek·tiŋ an'ten·ə }

reflecting curtain [ELECTROMAG] A vertical array of half-wave reflecting antennas, generally used one quarter-wavelength behind a radiating curtain of dipoles to form a high-gain antenna. { ri'flek·tiŋ 'kərt·ən }

reflecting electrode [ELECTR] Tabular outer electrode or the repeller plate in a microwave oscillator tube, corresponding in construction but not in function to the plate of an ordinary triode; used for generating extremely high frequencies. { ri'flek·tiŋ i'lekˌtrōd }

reflecting galvanometer *See* mirror galvanometer. { ri'flek·tiŋ ˌgal·və'näm·əd·ər }

reflecting grating [ELECTROMAG] Arrangement of wires placed in a waveguide to reflect one desired wave while allowing one or more other waves to pass freely. { ri'flek·tiŋ 'grād·iŋ }

reflecting microscope [OPTICS] A microscope whose objective is composed of two mirrors, one convex and the other concave; its imaging properties are independent of the wavelength of light, allowing it to be used even for infrared and ultraviolet radiation. { ri'flek·tiŋ 'mī·krəˌskōp }

reflecting nephoscope *See* mirror nephoscope. { ri'flek·tiŋ 'nef·əˌskōp }

reflecting prism [OPTICS] A prism used in place of a mirror for deviating light, usually designed so that there is no dispersion of light; the light undergoes at least one internal reflection. { ri'flek·tiŋ 'priz·əm }

reflecting sign [CIV ENG] A road sign painted with reflective paint so as to be easily visible in the light of a headlamp. { ri'flek·tiŋ 'sīn }

reflecting spectrograph [OPTICS] A solar spectrograph in which the collimator and camera element are long-focus concave mirrors. { ri'flek·tiŋ 'spek·trəˌgraf }

reflecting telescope [OPTICS] A telescope in which a concave parabolic mirror gathers light and forms a real image of an object. Also known as reflector telescope. { ri'flek·tiŋ 'tel·əˌskōp }

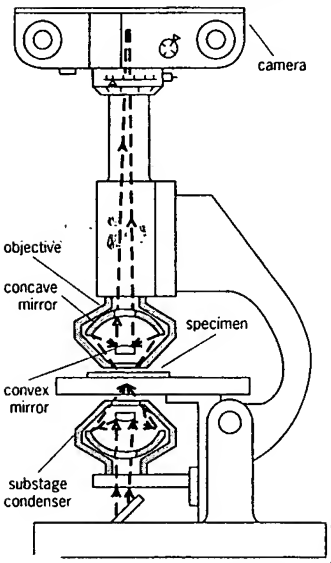
reflection [MATH] **1.** The reflection of a configuration in a line, in a plane, or in the origin of a coordinate system is the replacement of each point in the configuration by a point that is symmetric to the given point with respect to the line, plane, or origin. **2.** Two permutations, a and b, of the same objects are reflections of each other if the first object in a is the last object in b, the second object in a is the next-to-last object in b, and so forth, with the last object in a being the first object in b. [PHYS] The return of waves or particles from surfaces on which they are incident. { ri'flek·shən }

reflection altimeter *See* radio altimeter. { ri'flek·shən al'tim·əd·ər }

reflection angle *See* angle of reflection. { ri'flek·shən ˌaŋ·gəl }

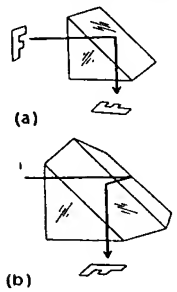
reflection coefficient [PHYS] The ratio of the amplitude of a wave reflected from a surface to the amplitude of the incident

REFLECTING MICROSCOPE



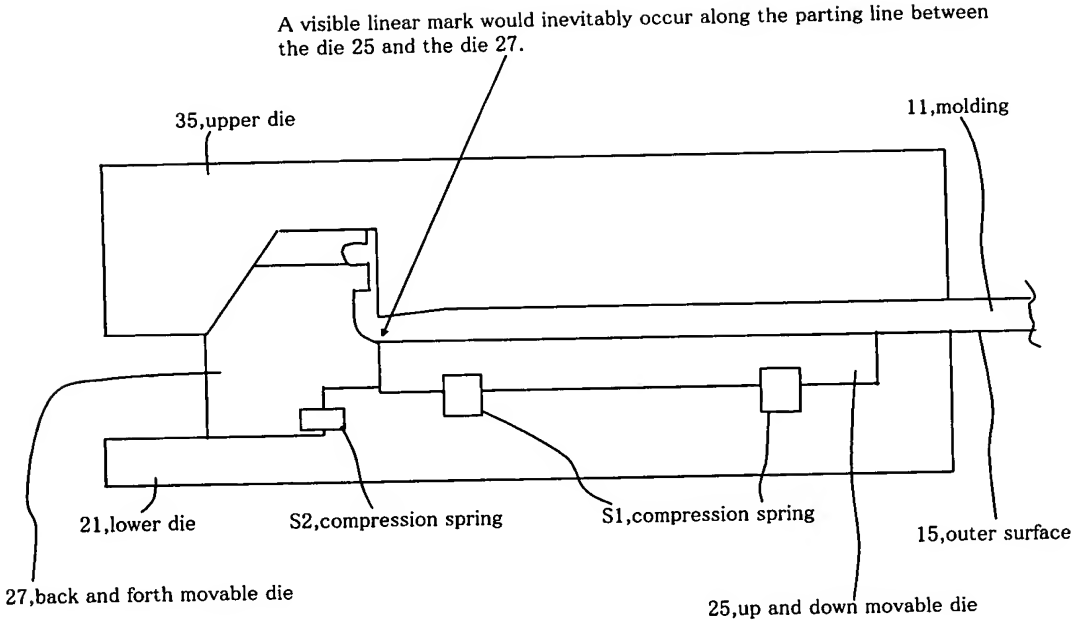
ing microscope arranged for icrography.

REFLECTING PRISM

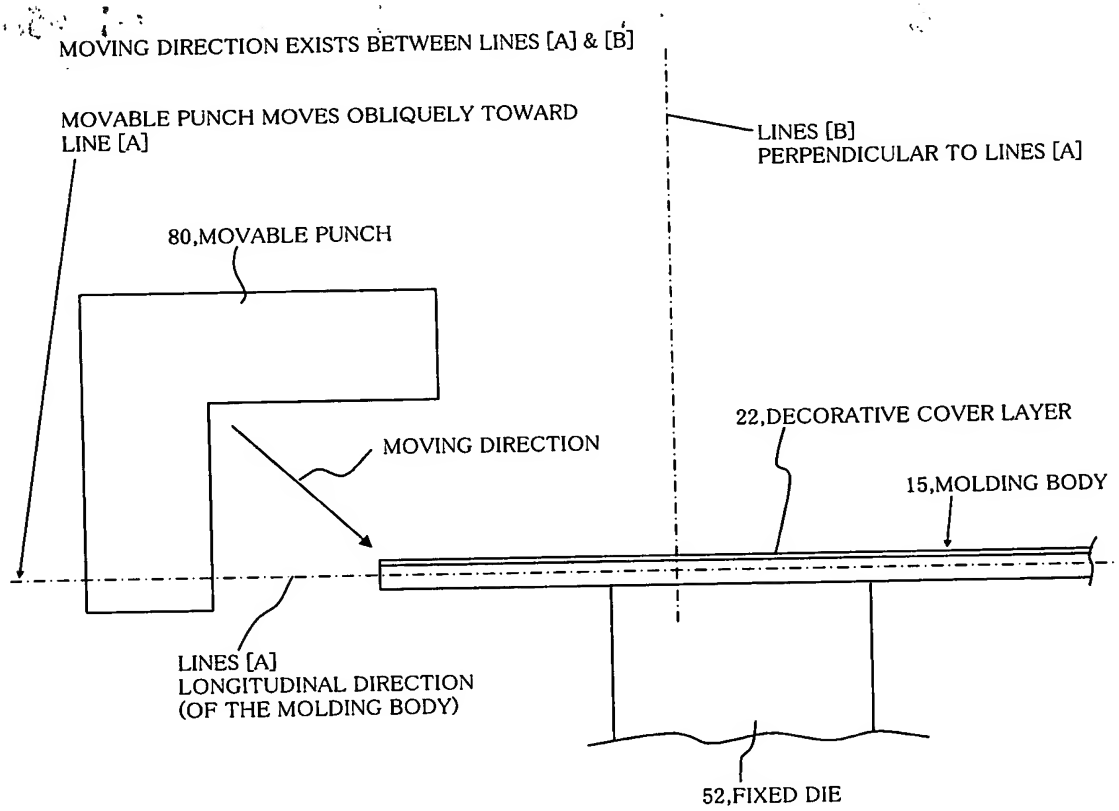


Examples of reflecting prism. *(a)* Right-angle. *(b)* Amici roof prism.

SKETCH 2



SKETCH 3



a million photosensors on a single semiconductor silicon chip arranged in a rectangular grid matrix that is placed in the focal plane of an optical instrument. { ˈfō·kəl ˌplān ə'rā }

focal-plane shutter [OPTICS] A camera shutter consisting of a blind containing a slot; the blind is pulled rapidly across the film, exposing it through the slot. { ˈfō·kəl ˌplān 'shəd·ər }

focal point [OPTICS] The point to which rays that are initially parallel to the axis of a lens, mirror, or other optical system are converged or from which they appear to diverge. Also known as principal focus. { ˈfō·kəl ˌpȯint }

focal power [OPTICS] A measure of the ability of a lens, mirror, prism, or optical system to converge a parallel beam of light; equals the reciprocal of the focal length. Also known as power. { ˈfō·kəl ˌpau·ər }

focal property [MATH] **1.** The property of an ellipse or hyperbola whereby lines drawn from the foci to any point on the conic make equal angles with the tangent to the conic at that point. **2.** The property of a parabola whereby a line from the focus to any point on the parabola, and a line through this point parallel to the axis of the parabola, make equal angles with the tangent to the parabola at this point. { ˈfō·kəl ˈpräp·ər·dē }

focal radius [MATH] For a conic, a line segment from a focus to any point on the conic. { ˈfō·kəl ˈrād·ē·əs }

focal ratio *See* f number. { ˈfō·kəl ˈrā·shō }

focal seizure [MED] An epileptic manifestation of a restricted nature, usually without loss of consciousness, due to irritation of a localized area of the brain. { ˈfō·kəl ˈsē·zhər }

focal spot [MET] In electron-beam or laser welding, the spot where the beam has the highest concentrated energy level. { ˈfō·kəl ˌspät }

Fock space [QUANT·MECH] An infinite-dimensional vector space in which the state of a quantum-mechanical system with a variable number of particles is represented by an infinite number of wave functions, each of which corresponds to a fixed number of particles. { ˈfōsh ˌspās }

focometer [ENG] An instrument for measuring focal lengths of optical systems. { fō'käm·əd·ər }

focus [ELECTR] To control convergence or divergence of the electron paths within one or more beams, usually by adjusting a voltage or current in a circuit that controls the electric or magnetic fields through which the beams pass, in order to obtain a desired image or a desired current density within the beam. [GEOPHYS] The center of an earthquake and the origin of its elastic waves within the earth. [MATH] A point in the plane which together with a line (directrix) defines a conic section. [NUCLEO] To guide particles along a desired path in a particle accelerator by means of electric or magnetic fields. [OPTICS] **1.** The point or small region at which rays converge or from which they appear to diverge. **2.** To move an optical lens toward or away from a screen or film to obtain the sharpest possible image of a desired object. { ˈfō·kəs }

focus control [ELECTR] A control that adjusts spot size at the screen of a cathode-ray tube to give the sharpest possible image; it may vary the current through a focusing coil or change the position of a permanent magnet. [OPTICS] A device to adjust a lens system to produce a sharp image. { ˈfō·kəs kən,trōl }

focused collision sequence [PHYS] A cascade of interatomic collisions, initiated by the bombardment of a crystal with energetic particles, that propagates in a particular direction along a closely packed row of atoms in the crystal. { ˌfō·kəst kə'lizh·ən ˌsē·kwəns }

focused-current log [ENG] A resistivity log that is obtained by means of a multiple-electrode arrangement. { ˌfō·kəst ˌkə·rənt ˈläg }

focusing anode [ELECTR] An anode used in a cathode-ray tube to change the size of the electron beam at the screen; varying the voltage on this anode alters the paths of electrons in the beam and thus changes the position at which they cross or focus. { ˈfō·kəs·iŋ ˌan,ōd }

focusing coil [ELECTR] A coil that produces a magnetic field parallel to an electron beam for the purpose of focusing the beam. { ˈfō·kəs·iŋ ˌkȯil }

focusing collector [ENG] A solar collector that uses semicircular aluminum reflectors to focus sunlight onto copper pipes containing circulating water. { ˈfō·kəs·iŋ kə'lek·tər }

focusing electrode [ELECTR] An electrode to which a potential is applied to control the cross-sectional area of the electron beam in a cathode-ray tube. { ˈfō·kəs·iŋ i,lek,trōd }

focusing glass [OPTICS] A magnifying glass designed to enlarge the image thrown on the ground glass of the viewfinder of a camera, to help achieve exact focusing. { ˈfō·kəs·iŋ ˌglas }

focusing magnet [ELECTR] A permanent magnet used to produce a magnetic field for focusing an electron beam. { ˈfō·kəs·iŋ ˌmag·nət }

focusing scale [OPTICS] A graduated scale to indicate appropriate lens-to-image plane positions for given lens-to-object plane distances. { ˈfō·kəs·iŋ ˌskāl }

focus lamp [ELEC] **1.** A lamp whose filament has a spiral or zigzag form in order to reduce its size, so that it can be brought into the focus of a lens or mirror. **2.** An arc lamp whose feeding mechanism is designed to hold the arc in a constant position with respect to an optical system that is used to focus its rays. { ˈfō·kəs ˌlamp }

focus projection and scanning [ELECTR] Method of magnetic focusing and electrostatic deflection of the electron beam of a hybrid vidicon; a transverse electrostatic field is used for beam deflection; this field is immersed with an axial magnetic field that focuses the electron beam. { ˌfō·kəs prə,jek·shən ən 'skan·iŋ }

focus wave mode [PHYS] A localized wave solution of the three-dimensional wave equation whose overall characteristics depend on a free parameter such that it resembles a transverse plane wave at one extreme and a narrow spatially transverse pulse at the other extreme. { ˌfō·kəs 'wāv ˌmōd }

foehn [METEOROL] A warm, dry wind on the lee side of a mountain range, the warmth and dryness being due to adiabatic compression as the air descends the mountain slopes. Also spelled föhn. { fān }

foehn air [METEOROL] The warm, dry air associated with foehn winds. { ˈfān ˌer }

foehn cloud [METEOROL] Any cloud form associated with a foehn, but usually signifying only those clouds of the lenticularis species formed in the lee wave parallel to the mountain ridge. { ˈfān ˌklaud }

foehn cyclone [METEOROL] A cyclone formed (or at least enhanced) as a result of the foehn process on the lee side of a mountain range. { ˈfān ˈsī,klōn }

foehn island [METEOROL] An isolated area where the foehn has reached the ground, in contrast to the surrounding area where foehn air has not replaced colder surface air. { ˈfān ˈī·lənd }

foehn nose [METEOROL] As seen on a synoptic surface chart, a typical deformation of the isobars in connection with a well-developed foehn situation; a ridge of high pressure is produced on the windward slopes of the mountain range, while a foehn trough forms on the lee side; the isobars "bulge" correspondingly, giving a noselike configuration. { ˈfān ˌnōz }

foehn pause [METEOROL] **1.** A temporary cessation of the foehn at the ground, due to the formation or intrusion of a cold air layer which lifts the foehn above the valley floor. **2.** The boundary between foehn air and its surroundings. { ˈfān ˌpȯz }

foehn period [METEOROL] The duration of continuous foehn conditions at a given location. { ˈfān ˌpir·ē·əd }

foehn phase [METEOROL] One of three stages to describe the development of the foehn in the Alps: the preliminary phase, when cold air at the surface is separated from warm dry air aloft by a subsidence inversion; the anticyclonic phase, when the warm air reaches a station as the result of the cold air flowing out from the plain; and the stationary phase or cyclonic phase, when the foehn wall forms and the downslope wind becomes appreciable. { ˈfān ˌfāz }

foehn sickness [MED] A phenomenon in humans in alpine regions, marked by adverse psychological and physiological effects during prolonged periods of foehn wind. { ˈfān ˌsik·nəs }

foehn storm [METEOROL] A type of destructive storm which frequently occurs in October in the Bavarian Alps. { ˈfān ˌstȯrm }

foehn trough [METEOROL] The dynamic trough formed in connection with the foehn. { ˈfān ˌtrȯf }

foehn wall [METEOROL] The steep leeward boundary of flat,

across a 600-ohm resistance to which is delivered a power of 1 milliwatt at 1000 hertz. { 'ref·rəns ˌväl·yəm }

reference white [COMMUN] **1.** In a scene viewed by television cameras, the color of light from a nonselective diffuse reflector that is lighted by the normal illumination of the scene. **2.** The color by which this color is simulated on a television screen or other display device. { 'ref·rəns ˌwīt }

reference white level [ELECTR] In television, the level at the point of observation corresponding to the specified maximum excursion of the picture signal in the white direction. { 'ref·rəns 'wīt ˌlev·əl }

referencing [ENG] The process of measuring the horizontal (or slope) distances and directions from a survey station to nearby landmarks, reference marks, and other permanent objects which can be used in the recovery or relocation of the station. { 'ref·rən·siŋ }

referred pain [MED] Pain felt in one area but originating in another area. { ri'fird 'pān }

refine [ENG] To free from impurities, as the separation of petroleum, ores, or chemical mixtures into their component parts. { ri'fīn }

refined kerosine *See* deodorized kerosine. { ri'fīnd 'ker·əˌsēn }

refined lard [FOOD ENG] A purified lard, produced by removing with alkali the free fatty acids, coloring matter, and mucilaginous gums from rendered lard. { ri'fīnd 'lärd }

refined lecithin *See* lecithin. { ri'fīnd 'les·ə·thən }

refined oil [MATER] A class of petroleum oil used for home lighting and cooking purposes. Also known as burning oil. { ri'fīnd 'ȯil }

refined paraffin wax [MATER] A grade of paraffin wax; a hard, crystalline hydrocarbon wax derived from mixed-base or paraffin-base crude oils. { ri'fīnd 'par·ə·fən ˌwaks }

refined tar [MATER] A tar from which water has been extracted by evaporation or distillation. { ri'fīnd 'tär }

refinement [MATH] A tower that can be obtained by inserting a finite number of subsets in a given tower. { ri'fīn·mənt }

refinery [CHEM ENG] System of process units used to convert crude petroleum into fuels, lubricants, and other petroleum-derived products. [MET] System of process units used to convert nonferrous-metal ores into pure metals, such as copper or zinc. { ri'fīn·rē }

refinery gas [MATER] Gas produced in petroleum refineries by cracking, reforming, and other processes; principally methane, ethane, ethylene, butanes, and butylenes. { ri'fīn·rē ˌgas }

refining temperature [MET] The temperature just above the transformation range employed in the heat treatment of steel in order to refine grain size. { ri'fīn·iŋ ˌtem·prə·chər }

reflectance [COMPUT SCI] In optical character recognition, the relative brightness of the inked area that forms the printed or handwritten character; distinguished from background reflectance and brightness. [ELEC] *See* reflection factor. [PHYS] *See* reflectivity. { ri'flek·təns }

reflectance spectrophotometry [SPECT] Measurement of the ratio of spectral radiant flux reflected from a light-diffusing specimen to that reflected from a light-diffusing standard substituted for the specimen. { ri'flek·təns ˌspek·trə·fə'täm·ə·trē }

reflected binary [COMPUT SCI] A particular form of gray code which is constructed according to the following rule: Let the first 2^N code patterns be given, for any N greater than 1; the next 2^N code patterns are derived by changing the $(N + 1)$-th bit from the right from 0 to 1 and repeating the original 2^N patterns in reverse order in the N rightmost positions. Also known as reflected code. { ri'flek·təd 'bīˌner·ē }

reflected buried structure [GEOL] The distortion of surface beds that reflect a similar structural distortion of underlying formations. { ri'flek·təd 'ber·ēd 'strək·chər }

reflected code *See* reflected binary. { ri'flek·təd 'kōd }

reflected impedance [ELEC] **1.** Impedance value that appears to exist across the primary of a transformer due to current flowing in the secondary. **2.** Impedance which appears at the input terminals as a result of the characteristics of the impedance at the output terminals. { ri'flek·təd im'pēd·ənz }

reflected pressure [PHYS] The pressure from an explosion (especially an airburst bomb), which is reflected from a solid object or surface, rather than dissipated in the air. { ri'flek·təd 'presh·ər }

reflected ray [PHYS] A ray extending outward from a point of reflection. { ri'flek·təd 'rā }

reflected resistance [ELEC] Resistance value that appears to exist across the primary of a transformer when a resistive load is across the secondary. { ri'flek·təd ri'zis·təns }

reflected signal indicator [ENG] Pen recorder which presents the radar signals within frequency gates; these recordings enable the operator to determine that an airborne object has penetrated the Doppler link and its direction of penetration. { ri'flek·təd ˌsig·nəl 'in·dəˌkād·ər }

reflected ultraviolet method [GRAPHICS] A method of ultraviolet photography in which an ultraviolet source is used and the camera is provided with a filter which permits only reflected ultraviolet light to reach the film. { ri'flek·təd ˌəl·trə'vī·lət ˌmeth·əd }

reflected wave [PHYS] A wave reflected from a surface, discontinuity, or junction of two different media, such as the sky wave in radio, the echo wave from a target in radar, or the wave that travels back to the source end of a mismatched transmission line. { ri'flek·təd 'wāv }

reflecting antenna [ELECTROMAG] An antenna used to achieve greater directivity or desired radiation patterns, in which a dipole, slot, or horn radiates toward a larger reflector which shapes the radiated wave to produce the desired pattern; the reflector may consist of one or two plane sheets, a parabolic or paraboloidal sheet, or a paraboloidal horn. { ri'flek·tiŋ an'ten·ə }

reflecting curtain [ELECTROMAG] A vertical array of half-wave reflecting antennas, generally used one quarter-wavelength behind a radiating curtain of dipoles to form a high-gain antenna. { ri'flek·tiŋ 'kərt·ən }

reflecting electrode [ELECTR] Tabular outer electrode or the repeller plate in a microwave oscillator tube, corresponding in construction but not in function to the plate of an ordinary triode; used for generating extremely high frequencies. { ri'flek·tiŋ i'lekˌtrōd }

reflecting galvanometer *See* mirror galvanometer. { ri'flek·tiŋ ˌgal·və'näm·əd·ər }

reflecting grating [ELECTROMAG] Arrangement of wires placed in a waveguide to reflect one desired wave while allowing one or more other waves to pass freely. { ri'flek·tiŋ 'grād·iŋ }

reflecting microscope [OPTICS] A microscope whose objective is composed of two mirrors, one convex and the other concave; its imaging properties are independent of the wavelength of light, allowing it to be used even for infrared and ultraviolet radiation. { ri'flek·tiŋ 'mī·krəˌskōp }

reflecting nephoscope *See* mirror nephoscope. { ri'flek·tiŋ 'nef·əˌskōp }

reflecting prism [OPTICS] A prism used in place of a mirror for deviating light, usually designed so that there is no dispersion of light; the light undergoes at least one internal reflection. { ri'flek·tiŋ 'priz·əm }

reflecting sign [CIV ENG] A road sign painted with reflective paint so as to be easily visible in the light of a headlamp. { ri'flek·tiŋ 'sīn }

reflecting spectrograph [OPTICS] A solar spectrograph in which the collimator and camera element are long-focus concave mirrors. { ri'flek·tiŋ 'spek·trəˌgraf }

reflecting telescope [OPTICS] A telescope in which a concave parabolic mirror gathers light and forms a real image of an object. Also known as reflector telescope. { ri'flek·tiŋ 'tel·əˌskōp }

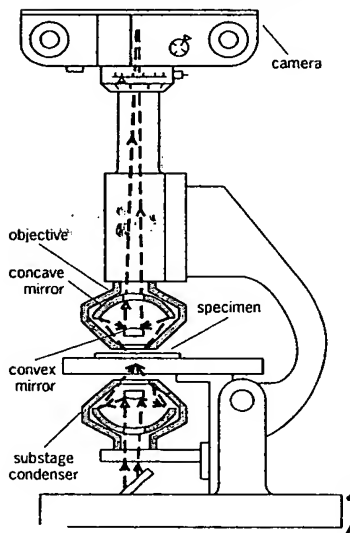
reflection [MATH] **1.** The reflection of a configuration in a line, in a plane, or in the origin of a coordinate system is the replacement of each point in the configuration by a point that is symmetric to the given point with respect to the line, plane, or origin. **2.** Two permutations, a and b, of the same objects are reflections of each other if the first object in a is the last object in b, the second object in a is the next-to-last object in b, and so forth, with the last object in a being the first object in b. [PHYS] The return of waves or particles from surfaces on which they are incident. { ri'flek·shən }

reflection altimeter *See* radio altimeter. { ri'flek·shən al'tim·əd·ər }

reflection angle *See* angle of reflection. { ri'flek·shən ˌaŋ·gəl }

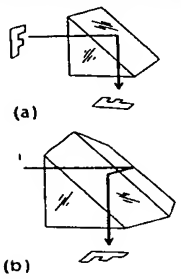
reflection coefficient [PHYS] The ratio of the amplitude of a wave reflected from a surface to the amplitude of the incident

REFLECTING MICROSCOPE



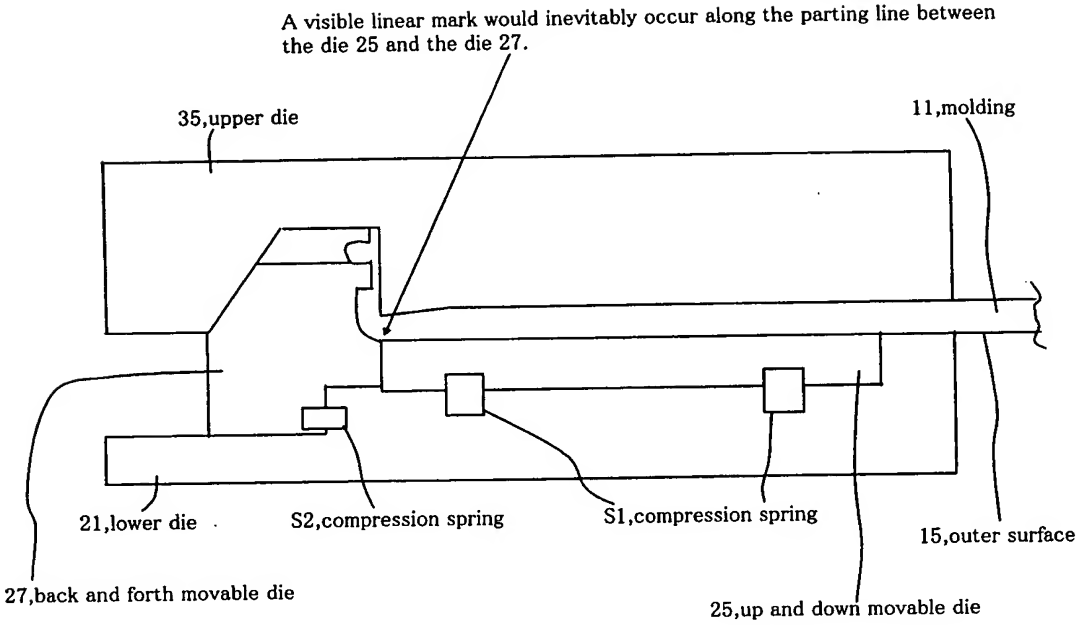
ing microscope arranged for icrography.

REFLECTING PRISM



Examples of reflecting prism. *(a)* Right-angle. *(b)* Amici roof prism.

SKETCH 2



SKETCH 3